

What Is The Relationship Between Job Stress and Work fatigue Among Construction Workers? A Cross-Sectional Study

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ABSTRAK

Pekerja konstruksi yang bekerja di lingkungan yang menantang secara fisik dan mental mengalami tingkat kelelahan kerja yang tinggi, yang merupakan penyebab utama kecelakaan dan penyakit akibat kerja, salah satu faktor yang mempengaruhi kelelahan kerja adalah stres kerja. Stres kerja dan gejala emosional dari kelelahan memiliki dampak yang signifikan terhadap kepuasan kerja karyawan. Tujuan penelitian ini untuk mengetahui hubungan antara stres kerja dengan kelelahan kerja pada pekerja konstruksi. Metode penelitian yang digunakan yaitu rancangan study cross sectional, dengan jumlah sampel yaitu 30 orang yang diambil dengan teknik total sampling. Jenis data primer yang didapatkan dengan menyebarkan kuesioner yang dilakukan pada bulan April 2023. Pengukuran stress kerja menggunakan kuesioner Survei Diagnosis Stress Kerja sesuai Permenaker No. 5 Tahun 2018, sedangkan untuk pengukuran Kelelahan Kerja menggunakan Subjective Self Rating Stress dari IFRC. Data dianalisis secara univariat menggunakan uji distribusi frekuensi, analisis bivariat dengan uji Chi-Square. Hasil penelitian didapatkan mayoritas responden pada tingkat kelelahan rendah (63.3%) dimana variabel yang berhubungan dengan kelelahan kerja yaitu quantitative overload ($p=0.009$) karena pekerja perlu melakukan pengukuran dan Penandaan Lokasi yang tepat serta manajer proyek perlu menghitung estimasi waktu berbagai tahap pekerjaan, dan career development dengan ($p=0.047$) karena sektor konstruksi memiliki struktur yang kaku, dimana kenaikan pangkat dilihat dari pendidikan dan pengalaman kerja. Sedangkan pada variabel role ambiguity, role conflict, qualitative overload dan responsibility to others tidak terdapat hubungan dalam kejadian kelelahan kerja. Disimpulkan bahwa quantitative overload dan career development memiliki hubungan dengan kejadian kelelahan pada pekerja konstruksi.

Kata kunci: Kelelahan, Pekerja Konstruksi, Stres Kerja

ABSTRACT

Job fatigue is the leading cause of job-related accidents and illnesses among construction worker who operate in physically and psychologically demanding situations. Job stress is one of the elements that contribute to job fatigue. Job stress and work fatigue-related emotional symptoms significantly influence worker job satisfaction. This study aimed to discover the link between job stress and fatigue in construction worker. A cross-sectional study design was employed for the research, with 30 participants drawn using the total sampling methodology. This type of primary data was gathered by distributing questionnaires in April 2023. Work stress was evaluated using the Work Stress Diagnostic Survey questionnaire in line with Permenaker No. 5 of 2018, while work Fatigue was measured using the IFRC's Subjective Self Rating Stress questionnaire. The frequency distribution test was used to examine data univariately, while the Chi-Square test was used to analyze data bivariately. The findings revealed that the majority of respondents (63.3%) had a low level of fatigue, with the variables related to work fatigue being quantitative overload ($p=0.009$) because workers need to carry out measurements and mark exact locations, and project managers need to calculate the estimated time for various stages of work, and career development with ($p=0.047$) because the construction sector has a rigid structure, where promotion is seen as a result of education and work experience There is no correlation between job fatigue and role ambiguity, role conflict, qualitative overload, and obligation to others. It was shown that quantitative overload and professional advancement are linked to fatigue in construction workers. **Keywords:** Fatigue, Construction Worker, Work Stress

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I. INTRODUCTION

The construction industry's distinct traits and dynamic nature create dangerous working conditions and a high risk of workplace accidents. The construction sector is the most dangerous when compared to other industries since it is relying on workers as its primary resource.¹ Job work fatigue is a prominent cause of occupational

accidents and disorders among construction worker who operate in physically and psychologically demanding situations.² The World Health Organization has clearly defined fatigue as a workplace problem.³ Work-related fatigue has now become one disease in the International Classification of Disease 11th

Revision.⁴ Thus, work-related fatigue can be considered an occupational disease.⁵

In 2016, 1.9 million individuals died as a result of work-related diseases and injuries worldwide.⁶ According to the International Labor Organization, over 340 million work accidents occur each year, and 160 million people suffer from job-related disorders.⁷ There were 225,000 work accidents and 53 job-related disorders in Indonesia alone in 2020. There were 82,000 work accidents and 179 job-related illnesses from January 2021 to September 2021.⁸ In the Province of D.I Yogyakarta in 2020, there were 131 incidents of work accidents and 0 cases of occupational diseases.⁹

In the construction industry, workers are often faced with excessive physical demands, such as lifting heavy loads, working in extreme weather conditions, and in non-ergonomic positions. They are also faced with technical challenges and tight project schedules, all of which can lead to high stress levels in workers.¹⁰

Work stress consisting of role ambiguity, role conflict, quantitative overload, qualitative overload, career development, responsibility to others.¹¹ The impact of work-related stress is work fatigue.¹² Work Fatigue is characterized as a reduction in performance, effectiveness, efficiency, strength, and endurance to continue working. Complaints about labor, such as lifting, pushing, standing, crouching, and sun exposure, lead to chronic tiredness in construction workers.¹³ Furthermore, occupational stress influences an individual's overall safety performance.¹⁴

The impact of work fatigue due to stress can cause a decrease in productivity. When stressed, workers may find it challenging to focus on their work, leading to decreased productivity and poor performance.¹⁵ It can also lead to increased absenteeism, as workers may need to take time off to recover from the physical and emotional stress.¹⁶

In the construction sector, there needs to be more awareness of the link between job stress and work fatigue. While prior studies in other industries have found a substantial connection between work stress and work fatigue, the construction industry's specific work

environment and job features need specialized study in this field.¹⁷

A study on workplace stress during COVID-19 found that increased workloads, role conflict, lack of autonomy, and lack of social support can lead to job strains and hamper performance, which can lead to job work fatigue.¹⁸

The Drinking Water Management System (DWMS) project is a construction project that has only been running for a few months, and workers are still adjusting to the work environment, workload, and work desk, which can cause work stress and eventually lead to work fatigue. Permenaker No. 5 of 2018 concerning Occupational Health and Safety in the Work Environment is one of the regulations that addresses psychological factors in the workplace; psychological factors themselves are factors that affect worker activities, caused by interpersonal relationships in the workplace, roles and responsibilities at work. There have been no studies related to work stress Based on Permenaker No. 5 of 2018 with work fatigue, so researchers quantify the relationship between the two. So the purpose of this study was to assess the relationship of work stress using Permenaker No. 5 of 2018 with work fatigue in construction workers.

II. METHODS

In this study, a cross-sectional study design was utilized to examine the association between work stress and the occurrence of work fatigue in construction worker. The study was carried out at the DWMS Project in Yogyakarta Province in April 2023. Thirty persons are employed in the Water Treatment Installation (WTI) project. Total sampling was used as the sampling approach in this study, which included 30 people as a sample. Primary data was collected by distributing questionnaires. With age, role ambiguity, role conflict, quantitative overload, qualitative overload, career development, responsibility to others as independent factors. In research, the dependent variable is work fatigue.

A standardized questionnaire is used to collect data, which is late according to the standard. Age was divided into two categories: 35 years (young age) and 35 years (old age),¹⁹ Work

stress was assessed using a standardized questionnaire based on Permenaker No. 5 of 2018 concerning Occupational Health and Safety in the Work Environment,¹¹ which has three levels of severity: mild, moderate, and severe. The work fatigue questionnaire uses a Subjective Self Rating Test questionnaire divided into five categories: not tired, mild, moderate, severe, and very heavy.²⁰

Tabel 1. Research Variables

Research Variables	Category	Indicators
Independent		
Role Ambiguity	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Role Conflict	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Quantitative Overload	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Qualitative Overload	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Career development	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Responsibility to Other:	Mild Stress	Skor 1-24
	Severe Stress	Skor >24
Dependent		
Work Fatigue	Mild	Skor 0-60
	Severe	Skor >60

The Frequency Distribution test is used to evaluate the distribution of each variable, whereas the Chi-Square test is used to establish the association between variables (bivariate analysis). Because the Chi-Square test is used in research, the categories for each variable are combined to form two categories. Using the Tableau Public 2022 application to present data diagrammatically.

III. RESULT AND DISCUSSION

Based on table 2, the average age of the responders was 40.60 years, with a minimum age of 17 years and a maximum age of 69 years. The majority of light stress on role ambiguity is 63.3%, the majority of light stress on role conflict

is 56.7%, the majority of light stress on quantitative overload is 60%, the majority is balanced (50%) on light and heavy stress on qualitative overload, the majority of mild stress on career development is 63.3%, and the majority of mild stress on responsibility to others is 70%. The bulk of work fatigue, as much as 63.3%, is classified as light.

Table 2. Characteristics of Respondents

Variabel	n (%)	Min-Max
Age (year)		
<35	11 (36.7)	17-69
≥ 35	19 (63.3)	
Role Ambiguity		
Mild Stress	19 (63.3)	5-26
Severe Stress	11 (36.7)	
Role Conflict		
Mild Stress	17 (56.7)	5-25
Severe Stress	13 (43.3)	
Quantitative Overload		
Mild Stress	18 (60)	5-32
Severe Stress	12 (40)	
Qualitative Overload		
Mild Stress	15 (50)	5-28
Severe Stress	15 (50)	
Career development		
Mild Stress	19 (63.3)	5-25
Severe Stress	11 (36.7)	
Responsibility to Others		
Mild Stress	21 (70)	5-29
Severe Stress	9 (30)	
Work Fatigue		
Mild	19 (63.3)	30-73
Severe	11 (36.7)	

Source : Primary data 2023

It was discovered that the majority of respondents (16.67% of those aged 35 years) experienced mild fatigue levels, with mild stress levels occurring in all sections of work stress, namely role ambiguity, role conflict, quantitative overload, qualitative overload, career development, and responsibility to others.



Figure 1. % of Total Count of Fatigue for each RtO broken down by Fatigue, Age (Year), RA, RC, QnO, QIO and CD. Color shows details about Age (Year)

Table 3. Relationship Between Work Stress and Work Fatigue

Variabel	Work Fatigue			p-value
	Mild n (%)	Severe n (%)	Total n (%)	
Age (year)				
<35	7 (23.3%)	4 (13.3%)	11 (36.7%)	1.000
≥ 35	12 (40%)	7 (23.3%)	19 (63.3%)	
Role Ambiguity				
Mild Stress	12 (40%)	7 (23.3%)	19 (63.3%)	1.000
Severe Stress	7 (23.3%)	4 (13.3%)	11 (36.7%)	
Role Conflict				
Mild Stress	12 (40%)	5 (16.7%)	17 (56.7%)	0.454
Severe Stress	7 (23.3%)	6 (20%)	13 (43.3%)	
Quantitative Overload				
Mild Stress	15 (50%)	3 (10%)	18 (60%)	0.009*
Severe Stress	4 (13.3%)	8 (26.7%)	12 (40%)	
Qualitative Overload				
Mild Stress	10 (33.3%)	5 (16.7%)	15 (50%)	0.705
Severe Stress	9 (30%)	6 (20%)	15 (50%)	
Career Development				
Mild Stress	15 (50%)	4 (13.3%)	19 (63.3%)	0.047*
Severe Stress	4 (13.3%)	7 (23.3%)	11 (36.7%)	
Responsibility to Others				
Mild Stress	14 (46.7%)	7 (23.3%)	21 (70%)	0.687
Severe Stress	5 (16.7%)	4 (13.3%)	9 (30%)	

Source : Primary data 2023

Based on Table 3, the quantitative overload and career development were shown to have a 0.05 p-value association with the occurrence of job work fatigue. The most associated characteristic is quantitative excess, which has a tenfold increased risk of labor work fatigue. The factors of role ambiguity, role conflict, qualitative overload, and obligation to

others have no link with the occurrence of job work fatigue

This theory suggests that work fatigue occurs due to the depletion of a limited resource of physical and/or psychological energy. This depletion can result from prolonged physical or mental exertion, lack of rest or recovery time, and the demands placed on individuals in their work tasks. Additionally, changes in motivation,

attention, and goal-directed behavior can also contribute to work fatigue. Individuals' motivation and concentration might deteriorate when they are continually engaged in hard job tasks without enough pauses or opportunity for recuperation, resulting to increased fatigue.²¹

Work atigue due to stress is based on the premise that workplace pressures can cause job weariness, which is characterized by emotional depletion, depersonalization, and decreased personal accomplishment.²² Work-related stress, job conflict, role ambiguity, and exposure to others' trauma are all variables that might lead to work.^{23,24}

Based on Permenaker No. 5 of 2018 concerning Occupational Safety and Health in the Work Environment, based on work stress consisting of role ambiguity, role conflict, quantitative overload, qualitative overload, career development, responsibility to others.¹¹

Work fatigue may impact workers of all ages. This incidence is thought to be the consequence of the evolution of the working day and perhaps the buildup of fatigue, which can ultimately affect the accident rate of all workers.²⁵

Individual outputs can be impaired when workers execute more than one specialized function, and as a result, businesses might suffer as a result of inadequate role stress management. Organizational role stress presents itself in two ways: role conflict and role ambiguity.²⁶ When there are many roles to fulfill, role ambiguity is characterized as uncertainty regarding the duties and responsibilities associated. Role conflict is defined in the literature as incompatibility or inconsistency in operating in the role assumed by an individual.²⁷ Ambiguity is caused by a lack of communication on the part of the organization, implying that the situation is more easily clarified than in the case of role conflict.²⁸ Employees' feeling of control over their work environment can be hampered by role ambiguity, making it harder for them to define priorities, allocate time efficiently, and cope with job-related difficulties. As a result, employees may feel helpless, which can add to work fatigue.²⁹ This study varies with Wu et al.'s, which discovered that role ambiguity has a negative and significant influence on job

work weariness and job performance, whereas role conflict has a negative but not significant impact on job performance.¹⁷

Overworked brains have a significant role in risk assessment and accident avoidance.³⁰ Workload increases are associated with shorter reaction times and higher levels of fatigue. The fatigue found in this study might be attributed to a variety of short-term performance and temporary and mental strain demands.³¹ Physical pressures, mental demands, time demands, and degrees of irritation all have an impact on insecure behavior. Performance and effort have no noticeable influence on hazardous behavior.³² Work overload is mostly generated by three factors: first, mental demands, second, job-imposed temporal or speed expectations, and third, efforts made to achieve performance.³³ Working vigorously and for long periods of time might result in physical fatigue. When employees have to complete strenuous tasks or face high physical stress, their bodies can become tired and weak, increasing the risk of work fatigue. This physical fatigue can have negative effects on both the individual's well-being and their performance at work³⁴ According to the findings of Alaminos-Torres et al., overall exhaustion was the most important parameter on WO, whereas WO had the greatest influence on fatigue, followed by sleepiness.³³ Elhsaer et al. obtained quantitative overload on workers as high as 76.8% and was not linked with fatigue syndrome.³⁵

Work stress caused by job uncertainty is referred to as career development.³⁶ Career development and the activity itself are two factors that contribute to occupational stress among construction project staff.³⁷ This suggests that work stress is directly related to changing employment. Greater workplace stress lowers career development behavior; men and women respond differently to work stress in terms of career development behavior.³⁸ Job stress creates work fatigue and can have negative consequences such as a low level of psychological attachment to the organization.³⁹ According to the findings of Barthauer et al., saturation was positively associated to change occupations, while perceived internal selling power and professional satisfaction moderated the association between

saturation and the desire to change careers. The perceived department was also shown to mitigate the link between perceived work fatigue, internal marketing, and career satisfaction.³⁹ Job satisfaction and responsibility for other people's lives are associated with higher levels of personal performance.³⁵

Based on the questionnaire from Permenaker No. 5 of 2018, an update in this study is that there is a relationship between quantitative workload and career paths with work fatigue in construction workers. While these regulations have the objective of providing a safe, healthy and comfortable work environment as well as avoiding work-related accidents and diseases.

IV. CONCLUSION

A greater sense of responsibility for their work has a favorable effect on their mental health of the variables as a whole found that the majority of respondents (16.67% of those aged 35 years) experienced mild fatigue levels, with incidents of mild stress levels in all sections of work stress, namely role ambiguity, role conflict, quantitative overload, qualitative overload, career development, and responsibility to others. The two most closely connected factors are quantitative overload and professional development. Many factors might impact the study's results, including field circumstances when distributing the surveys (unfavorable because it is done when people are working, the weather is hot, the habit of responding to questionnaires, and others).

The company manages work fatigue by conducting a comprehensive assessment of worker tasks and responsibilities, ensuring resource availability and support, offering work area-specific training and stress management, establishing a transparent career advancement system, and promoting work-life balance and development. To utilize the work stress measuring tool in future research, you may increase the number of respondents, add additional factors, and cooperate with others. In future study, you can expand the number of respondents, add new factors, and collaborate with others to utilize work stress measuring tools.

The restrictions in this study were field settings and time limits; since the questionnaire was filled out immediately while construction workers were working, thus employees had to fill it out fast. Another barrier is the distance to the remote study site, as well as the lousy field circumstances (scorching hot heat, uneven terrain conditions).

REFERENCES

1. Wahyu Adi TJ, Ayu Ratnawinanda L. Construction Worker Fatigue Prediction Model Based on System Dynamic. MATEC Web Conf. 2017;138.
2. Seong S, Park S, Ahn YH, Kim H. Development of an integrated fatigue measurement system for construction workers: a feasibility study. BMC Public Health [Internet]. 2022;22(1):1–13. Available from: <https://doi.org/10.1186/s12889-022-13973-5>
3. Harvard Business Review Press. HBR Guide to Beating Burnout. Boston: Harvard Business School Publishing; 2021. 1–233 p.
4. World Health Organization. International Classification of Diseases 11th Revision [Internet]. World Health Organization. 2023 [cited 2023 Apr 2]. Available from: <https://icd.who.int/browse11/l-m/en>
5. Rachmawati D, Paskarini I. Correlation between Individual Characteristics and Rest Break with Work-related Fatigue on Telecommunication Network Service Workers. Indones J Occup Saf Heal. 2021;10(1):25–33.
6. World Health Organization. WHO/ILO: Almost 2 million people die from work-related causes each year [Internet]. World Health Organization. 2021 [cited 2023 Apr 4]. Available from: <https://www.who.int/news/item/17-09-2021-who-ilo-almost-2-million-people-die-from-work-related-causes-each-year>
7. International Labour Organization. World Statistic : The enormous burden of poor working conditions [Internet]. 2023 [cited 2023 Apr 4]. Available from: https://www.ilo.org/moscow/areas-of-work/occupational-safety-and-health/WCMS_249278/lang--en/index.htm
8. Biro Humas Kemnaker. Menaker: Pentingnya Sosialisasi K3 Inovatif dan Berbasis Digital di era Digitalisasi [Internet]. Biro Humas Kemnaker. 2022 [cited 2023 Apr 4]. Available from: <https://kemnaker.go.id/news/detail/menaker-pentingnya-sosialisasi-k3-inovatif-dan-berbasis-digital-di-era-digitalisasi>
9. Kementerian Ketenagakerjaan Republik Indonesia. Kasus kecelakaan kerja yang terjadi pada triwulan II tahun 2020 tercatat sekitar 3.174 kasus [Internet]. Satu Data Kemenaker. 2023

- [cited 2023 Apr 5]. Available from: <https://satudata.kemnaker.go.id/data/kumpulan-data/22>
10. Hulls PM, de Vocht F, Martin RM, Langford RM. "We are our own worst enemy": a qualitative exploration of work-related stress in the construction industry. *Int J Work Heal Manag.* 2022;15(5):609–22.
 11. Permenaker. Peraturan Menteri Tenaga Kerja No. 03 Tahun 1998 Tentang Tatacara Pelaporan dan Pemeriksaan Kecelakaan. Menteri Tenaga Kerja [Internet]. 1998;03:33–73. Available from: https://jdih.kemnaker.go.id/data_wirata/1998-2-4.pdf
 12. Lu Y, Liu Q, Yan H, Liu T. Effects of occupational hazards and occupational stress on job burn-out of factory workers and miners in Urumqi: a propensity score-matched cross-sectional study. *BMJ Open.* 2022;12(9).
 13. Siregar SD, Samosir FJ, Hulu VT, Ivana Kumakauw BT, Ikhtiari R. A Quasi-Experimental Study of Young Coconut Water in Reducing Fatigue on Construction Workers. *IOP Conf Ser Earth Environ Sci.* 2022;1083(1):1–11.
 14. Race MC. *Mental Illness at Work.* London: University College London; 2014. 1–23 p.
 15. Karakaş A, Şahin Tezcan N. Conflict and Worker Performance: A Research Study on Hospitality Employees. *Eur J Tour Res.* 2019;21:102–18.
 16. Ahmad SNA, Abdul Rasid SZ, Abdul Rasool MS, Mat Isa NA. Work Stress and its Impact on Employees' Psychological Strain. *Int J Acad Res Bus Soc Sci.* 2021;11(8).
 17. Wu G, Hu Z, Zheng J. Role stress, job burnout, and job performance in construction project managers: The moderating role of career calling. *Int J Environ Res Public Health.* 2019;16(13):1–20.
 18. Saleem F, Malik MI, Qureshi SS. Work Stress Hampering Employee Performance During COVID-19: Is Safety Culture Needed? *Front Psychol.* 2021;12(August):1–13.
 19. Badan Perencanaan Pembangunan Nasional. Kelompok Usia [Internet]. SEPAKAT WIKI. 2018 [cited 2023 Jun 10]. p. 1. Available from: https://sepakat.bappenas.go.id/wiki/Kelompok_Usia
 20. Saito K. Measurement of fatigue in industries. *Ind Health* [Internet]. 1999;37(2):134–42. Available from: https://www.jstage.jst.go.jp/article/indhealth1963/37/2/37_2_134/pdf/-char/ja
 21. Johnston DW, Allan JL, Powell DJH, Jones MC, Farquharson B, Bell C, et al. Why does work cause fatigue? A real-time investigation of fatigue, and determinants of fatigue in nurses working 12-hour shifts. *Ann Behav Med.* 2019;53(6):551–62.
 22. Edú-valsania S, Laguía A, Moriano JA. Burnout: A Review of Theory and Measurement. *Int J Environ Res Public Health.* 2022;19(3).
 23. Zakaria H, Diyana Kamarudin, Faiz Azizul, Asma' Durrah Mohd Feham, Ame Abdullah. Work-Related Stress: Contributing Factor of Employee Burnout in Malaysia's Food and Beverage Industry. *Int J Humanit Technol Civiliz.* 2022;7(2):99–106.
 24. Grala K. Relationships between perceived stress at work, occupational burnout and ego-resiliency in a group of public administration employees: testing the assumption about the moderating role of ego-resiliency (replication study in Poland). *Int J Occup Saf Ergon.* 2023 Sep;29(3):1160–8.
 25. López MAC, Alcántara OJG, Fontaneda I, Mañanes M. The Risk Factor of Age in Construction Accidents: Important at Present and Fundamental in the Future. *Biomed Res Int.* 2018;2018:1–11.
 26. Huang L, Chang KY, Yeh YC. How can travel agencies create sustainable competitive advantages? Perspective on employee role stress and initiative behavior. *Sustain.* 2020;12(11).
 27. Ebberts JJ, Wijnberg NM. Betwixt and between: Role conflict, role ambiguity and role definition in project-based dual-leadership structures. *Hum Relations.* 2017;70(11):1342–65.
 28. Guimarães TA, Gomes AO, Correia PMAR, Oliveira I, Piazzentin T. Conflitos e ambiguidades de papéis no trabalho de juizes: As percepções de juizes portugueses. *Rev Adm Publica.* 2017;51(6):927–46.
 29. Alblihed M, Alzghaibi HA. The Impact of Job Stress, Role Ambiguity and Work-Life Imbalance on Turnover Intention during COVID-19: A Case Study of Frontline Health Workers in Saudi Arabia. *Int J Environ Res Public Health.* 2022;19(20).
 30. Che H, Zeng S, You Q, Song Y, Guo J. A fault tree-based approach for aviation risk analysis considering mental workload overload. *Eksplot i Niezawodn.* 2021;23(4):646–58.
 31. Arsintescu L, Chachad R, Gregory KB, Mulligan JB, Flynn-Evans EE. The relationship between workload, performance and fatigue in a short-haul airline. *Chronobiol Int* [Internet]. 2020;37(9–10):1492–4. Available from: <https://doi.org/10.1080/07420528.2020.1804924>
 32. Feng T, Ren Y. Research on the impact of coal miners' workload on unsafe behaviors. *E3S Web Conf.* 2021;245.
 33. Alaminos-Torres A, Martínez-Álvarez JR, Martínez-Lorca M, López-Ejeda N, Marrodán Serrano MD. Fatigue, Work Overload, and Sleepiness in a Sample of Spanish Commercial Airline Pilots. *Behav Sci (Basel).* 2023;13(4).
 34. Al-Ali T, Akour MM, Al-Masri E, Mizaghobian AAH, Ghaith S. Psychological Burnout among Professionals Working with Children with Motor Disabilities. *Psychol Russ State Art.* 2021;14(1):69–85.

35. Elshaer NSM, Moustafa MSA, Aiad MW, Ramadan MIE. Job Stress and Burnout Syndrome among Critical Care Healthcare Workers. *Alexandria J Med* [Internet]. 2018;54(3):273–7. Available from: <https://doi.org/10.1016/j.ajme.2017.06.004>
36. Wu X, Li Y, Yao Y, Luo X, He X, Yin W. Development of construction workers job stress scale to study and the relationship between job stress and safety behavior: An empirical study in Beijing. *Int J Environ Res Public Health*. 2018;15(11):1–13.
37. Lv X, Wu X, Ci H, Liu Q, Yao Y. Empirical research on the influencing factors of the occupational stress for construction workers. *IOP Conf Ser Earth Environ Sci*. 2017;61(1):1–8.
38. Roh KR, Kim EB. An analysis of male and female managers' responses to work stress: Focused on the case of South Korea. *Int J Environ Res Public Health*. 2021;18(21).
39. Zhang S, Wang J, Xie F, Yin D, Shi Y, Zhang M, et al. A cross-sectional study of job burnout, psychological attachment, and the career calling of Chinese doctors. *BMC Health Serv Res*. 2020;20(1):1–11.